

#²**Acknowledgment Receipt:**

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APPLICATION NUMBER: 10055797

FIRST NAMED INVENTOR: David Beach

TITLE OF INVENTION: Methods and Compositions for RNA Interference

ATTORNEY DOCKET NUMBER: GNCA-P03-007



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transmittal	tranGNCA-P03-007SequenceListing.xml 6333 Bytes
sequence-listing	GNCA-P03-007SequenceListing.txt 108585 Bytes
biotechnology-listing-filing	GNCA-P03-007SequenceListingbio.xml 957 Bytes
biotechnology-listing-filing	u-bio.dtd 3619 Bytes
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DIGITAL CERTIFICATE HOLDER NAME: cn=Matthew P. Vincent, ou=Registered Attorneys

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GNCA-P03-007SequenceListing.txt

SEQUENCE LISTING

<110> Hammond et al.

<120> METHODS AND COMPOSITIONS FOR RNA INTERFERENCE

<130> GNCA-P03-007

<140> 10/055,797

<141> 2002-01-22

<150> 60/189,739

<151> PCT/US01/08435

<160> 17

<170> PatentIn version 3.1

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GNCA-P03-007SequenceListing.txt

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GNCA-P03-007sequenceListing.txt															
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Pro	Gly	Thr	Thr	Asp	Thr	Ile	Gln	Val	Leu	Lys	Gly	Arg	Met	Asp	
1265						1270					1275				
tct	gag	cag	agc	cct	tct	att	ggg	tac	tcc	tca	agg	act	ctt	ggc	3879
Ser	Glu	Gln	Ser	Pro	Ser	Ile	Gly	Tyr	Ser	Ser	Arg	Thr	Leu	Gly	
1280						1285					1290				
ccc	aat	cct	gga	ctt	att	ctt	cag	gct	ttg	act	ctg	tca	aac	gct	3924
Pro	Asn	Pro	Gly	Leu	Ile	Leu	Gln	Ala	Leu	Thr	Leu	Ser	Asn	Ala	
1295						1300					1305				
agt	gat	gga	ttt	aac	ctg	gag	cgg	ctt	gaa	atg	ctt	ggc	gac	tcc	3969
Ser	Asp	Gly	Phe	Asn	Leu	Glu	Arg	Leu	Glu	Met	Leu	Gly	Asp	Ser	
1310						1315					1320				
ttt	tta	aag	cat	gcc	atc	acc	aca	tat	cta	ttt	tgc	act	tac	cct	4014
Phe	Leu	Lys	His	Ala	Ile	Thr	Thr	Tyr	Leu	Phe	Cys	Thr	Tyr	Pro	
1325						1330					1335				
gat	gcg	cat	gag	ggc	cgc	ctt	tca	tat	atg	aga	agc	aaa	aag	gtc	4059
Asp	Ala	His	Glu	Gly	Arg	Leu	Ser	Tyr	Met	Arg	Ser	Lys	Lys	Val	
1340						1345					1350				
agc	aac	tgt	aat	ctg	tat	cgc	ctt	gga	aaa	aag	aag	gga	cta	ccc	4104
Ser	Asn	Cys	Asn	Leu	Tyr	Arg	Leu	Gly	Lys	Lys	Lys	Gly	Leu	Pro	
1355						1360					1365				
agc	cgc	atg	gtg	gtg	tca	ata	ttt	gat	ccc	cct	gtg	aat	tgg	ctt	4149
Ser	Arg	Met	Val	Val	Val	Ser	Ile	Phe	Asp	Pro	Pro	Val	Asn	Trp	Leu
1370						1375					1380				
cct	cct	ggt	tat	gta	gta	aat	caa	gac	aaa	agc	aac	aca	gat	aaa	4194
Pro	Pro	Gly	Tyr	Val	Val	Asn	Gln	Asp	Lys	Ser	Asn	Thr	Asp	Lys	
1385						1390					1395				
tgg	gaa	aaa	gat	gaa	atg	aca	aaa	gac	tgc	atg	ctg	gcg	aat	ggc	4239
Trp	Glu	Lys	Asp	Glu	Met	Thr	Lys	Asp	Cys	Met	Leu	Ala	Asn	Gly	
1400						1405					1410				
aaa	ctg	gat	gag	gat	tac	gag	gag	gag	gat	gag	gag	gag	gag	agc	4284
Lys	Leu	Asp	Glu	Asp	Tyr	Glu	Glu	Glu	Asp	Glu	Glu	Glu	Glu	Ser	
1415						1420					1425				
ctg	atg	tgg	agg	gct	ccg	aag	gaa	gag	gct	gac	tat	gaa	gat	gat	4329
Leu	Met	Trp	Arg	Ala	Pro	Lys	Glu	Glu	Ala	Asp	Tyr	Glu	Asp	Asp	
1430						1435					1440				
ttc	ctg	gag	tat	gat	cag	gaa	cat	atc	aga	ttt	ata	gat	aat	atg	4374
Phe	Leu	Glu	Tyr	Asp	Gln	Glu	His	Ile	Arg	Phe	Ile	Asp	Asn	Met	
1445						1450					1455				
tta	atg	ggg	tca	gga	gct	ttt	gta	aag	aaa	atc	tct	ctt	tct	cct	4419
Leu	Met	Gly	Ser	Gly	Ala	Phe	Val	Lys	Lys	Ile	Ser	Leu	Ser	Pro	
1460						1465					1470				
ttt	tca	acc	act	gat	tct	gca	tat	gaa	tgg	aaa	atg	ccc	aaa	aaa	4464
Phe	Ser	Thr	Thr	Asp	Ser	Ala	Tyr	Glu	Trp	Lys	Met	Pro	Lys	Lys	
1475						1480					1485				
tcc	tcc	tta	ggg	agt	atg	cca	ttt	tca	tca	gat	ttt	gag	gat	ttt	4509

GNCA-P03-007SequenceListing.txt

Ser	Ser	Leu	Gly	Ser	Met	Pro	Phe	Ser	Ser	Asp	Phe	Glu	Asp	Phe
1490						1495					1500			
gac	tac	agc	tct	tgg	gat	gca	atg	tgc	tat	ctg	gat	cct	agc	aaa
Asp	Tyr	Ser	Ser	Trp	Asp	Ala	Met	Cys	Tyr	Leu	Asp	Pro	Ser	Lys
1505						1510					1515			
gct	gtt	gaa	gaa	gat	gac	ttt	gtg	gtg	ggg	ttc	tgg	aat	cca	tca
Ala	Val	Glu	Glu	Asp	Asp	Phe	Val	Val	Gly	Phe	Trp	Asn	Pro	Ser
1520						1525					1530			
gaa	gaa	aac	tgt	ggt	gtt	gac	acg	gga	aag	cag	tcc	att	tct	tac
Glu	Glu	Asn	Cys	Gly	Val	Asp	Thr	Gly	Lys	Gln	Ser	Ile	Ser	Tyr
1535						1540					1545			
gac	ttg	cac	act	gag	cag	tgt	att	gct	gac	aaa	agc	ata	gcg	gac
Asp	Leu	His	Thr	Glu	Gln	Cys	Ile	Ala	Asp	Lys	Ser	Ile	Ala	Asp
1550						1555					1560			
tgt	gtg	gaa	gcc	ctg	ctg	ggc	tgc	tat	tta	acc	agc	tgt	ggg	gag
Cys	Val	Glu	Ala	Leu	Leu	Gly	Cys	Tyr	Leu	Thr	Ser	Cys	Gly	Glu
1565						1570					1575			
agg	gct	gct	cag	ctt	ttc	ctc	tgt	tca	ctg	ggg	ctg	aag	gtg	ctc
Arg	Ala	Ala	Gln	Leu	Phe	Leu	Cys	Ser	Leu	Gly	Leu	Lys	Val	Leu
1580						1585					1590			
ccg	gta	att	aaa	agg	act	gat	cgg	gaa	aag	gcc	ctg	tgc	cct	act
Pro	Val	Ile	Lys	Arg	Thr	Asp	Arg	Glu	Lys	Ala	Leu	Cys	Pro	Thr
1595						1600					1605			
cgg	gag	aat	ttc	aac	agc	caa	caa	aag	aac	ctt	tca	gtg	agc	tgt
Arg	Glu	Asn	Phe	Asn	Ser	Gln	Gln	Lys	Asn	Leu	Ser	Val	Ser	Cys
1610						1615					1620			
gct	gct	gct	tct	gtg	gcc	agt	tca	cgc	tct	tct	gtg	ttg	aaa	gac
Ala	Ala	Ala	Ser	Val	Ala	Ser	Ser	Arg	Ser	Ser	Val	Leu	Lys	Asp
1625						1630					1635			
tcg	gaa	tat	ggt	tgt	ttg	aag	att	cca	cca	aga	tgt	atg	ttt	gat
Ser	Glu	Tyr	Gly	Cys	Leu	Lys	Ile	Pro	Pro	Arg	Cys	Met	Phe	Asp
1640						1645					1650			
cat	cca	gat	gca	gat	aaa	aca	ctg	aat	cac	ctt	ata	tcg	ggg	ttt
His	Pro	Asp	Ala	Asp	Lys	Thr	Leu	Asn	His	Leu	Ile	Ser	Gly	Phe
1655						1660					1665			
gaa	aat	ttt	gaa	aag	aaa	atc	aac	tac	aga	ttc	aag	aat	aag	gct
Glu	Asn	Phe	Glu	Lys	Lys	Ile	Asn	Tyr	Arg	Phe	Lys	Asn	Lys	Ala
1670						1675					1680			
tac	ctt	ctc	cag	gct	ttt	aca	cat	gcc	tcc	tac	cac	tac	aat	act
Tyr	Leu	Leu	Gln	Ala	Phe	Thr	His	Ala	Ser	Tyr	His	Tyr	Asn	Thr
1685						1690					1695			
atc	act	gat	tgt	tac	cag	cgc	tta	gaa	ttc	ctg	gga	gat	gcg	att
Ile	Thr	Asp	Cys	Tyr	Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Ile
1700						1705					1710			
ttg	gac	tac	ctc	ata	acc	aag	cac	ctt	tat	gaa	gac	ccg	ccg	cag
Leu	Asp	Tyr	Leu	Ile	Thr	Lys	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln
1715						1720					1725			
cac	tcc	ccg	ggg	gtc	ctg	aca	gac	ctg	cgg	tct	gcc	ctg	gtc	aac
His	Ser	Pro	Gly	Val	Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn
1730						1735					1740			
aac	acc	atc	ttt	gca	tcg	ctg	gct	gta	aag	tac	gac	tac	cac	aag
Asn	Thr	Ile	Phe	Ala	Ser	Leu	Ala	Val	Lys	Tyr	Asp	Tyr	His	Lys
1745						1750					1755			
tac	tcc	aaa	gct	gtc	tct	cct	gag	ctc	ttc	cat	gtc	att	gat	gac
Tyr	Phe	Lys	Ala	Val	Ser	Pro	Glu	Leu	Phe	His	Val	Ile	Asp	Asp
1760						1765					1770			
ttt	gtg	cag	ttt	cag	ctt	gag	aag	aat	gaa	atg	caa	gga	atg	gat
Phe	Val	Gln	Phe	Gln	Leu	Glu	Lys	Asn	Glu	Met	Gln	Gly	Met	Asp
1775						1780					1785			
tct	gag	ctt	agg	aga	tct	gag	gag	gat	gaa	gag	aaa	gaa	gag	gat
Ser	Glu	Leu	Arg	Arg	Ser	Glu	Glu	Asp	Glu	Glu	Lys	Glu	Glu	Asp
1790						1795					1800			
att	gaa	gtt	cca	aag	gcc	atg	ggg	gat	att	ttt	gag	tgc	ctt	gct

GNCA-P03-007SequenceListing.txt

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<212> PRT
<213> Homo sapiens

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 Gln Gln Glu Ala Ile His Asp Asn Ile Tyr Thr Pro Arg Lys Tyr Gln
 35 40 45
 Val Glu Leu Leu Glu Ala Ala Leu Asp His Asn Thr Ile Val Cys Leu
 50 55 60
 Asn Thr Gly Ser Gly Lys Thr Phe Ile Ala Ser Thr Thr Leu Leu Lys
 65 70 75 80
 Ser Cys Leu Tyr Leu Asp Leu Gly Glu Thr Ser Ala Arg Asn Gly Lys
 85 90 95
 Arg Thr Val Phe Leu Val Asn Ser Ala Asn Gln Val Ala Gln Gln Val
 100 105 110
 Ser Ala Val Arg Thr His Ser Asp Leu Lys Val Gly Glu Tyr Ser Asn
 115 120 125
 Leu Glu Val Asn Ala Ser Trp Thr Lys Glu Arg Trp Asn Gln Glu Phe
 130 135 140
 Thr Lys His Gln Val Leu Ile Met Thr Cys Tyr Val Ala Leu Asn Val
 145 150 155 160

GNCA-P03-007SequenceListing.txt

Leu Lys Asn Gly Tyr Leu Ser Leu Ser Asp Ile Asn Leu Leu Val Phe
 165 170 175

Asp Glu Cys His Leu Ala Ile Leu Asp His Pro Tyr Arg Glu Phe Met
 180 185 190

Lys Leu Cys Glu Ile Cys Pro Ser Cys Pro Arg Ile Leu Gly Leu Thr
 195 200 205

Ala Ser Ile Leu Asn Gly Lys Trp Asp Pro Glu Asp Leu Glu Glu Lys
 210 215 220

Phe Gln Lys Leu Glu Lys Ile Leu Lys Ser Asn Ala Glu Thr Ala Thr
 225 230 235 240

Asp Leu Val Val Leu Asp Arg Tyr Thr Ser Gln Pro Cys Glu Ile Val
 245 250 255

Val Asp Cys Gly Pro Phe Thr Asp Arg Ser Gly Leu Tyr Glu Arg Leu
 260 265 270

Leu Met Glu Leu Glu Glu Ala Leu Asn Phe Ile Asn Asp Cys Asn Ile
 275 280 285

Ser Val His Ser Lys Glu Arg Asp Ser Thr Leu Ile Ser Lys Gln Ile
 290 295 300

Leu Ser Asp Cys Arg Ala Val Leu Val Val Leu Gly Pro Trp Cys Ala
 305 310 315 320

Asp Lys Val Ala Gly Met Met Val Arg Glu Leu Gln Lys Tyr Ile Lys
 325 330 335

His Glu Gln Glu Glu Leu His Arg Lys Phe Leu Leu Phe Thr Asp Thr
 340 345 350

Phe Leu Arg Lys Ile His Ala Leu Cys Glu Glu His Phe Ser Pro Ala
 355 360 365

Ser Leu Asp Leu Lys Phe Val Thr Pro Lys Val Ile Lys Leu Leu Glu
 370 375 380

Ile Leu Arg Lys Tyr Lys Pro Tyr Glu Arg His Ser Phe Glu Ser Val
 385 390 395 400

Glu Trp Tyr Asn Asn Arg Asn Gln Asp Asn Tyr Val Ser Trp Ser Asp
 405 410 415

Ser Glu Asp Asp Asp Glu Asp Glu Ile Glu Glu Lys Glu Lys Pro
 420 425 430

Glu Thr Asn Phe Pro Ser Pro Phe Thr Asn Ile Leu Cys Gly Ile Ile
 435 440 445

Phe Val Glu Arg Arg Tyr Thr Ala Val Val Leu Asn Arg Leu Ile Lys
 450 455 460

Glu Ala Gly Lys Gln Asp Pro Glu Leu Ala Tyr Ile Ser Ser Asn Phe
 465 470 475 480

Ile Thr Gly His Gly Ile Gly Lys Asn Gln Pro Arg Asn Asn Thr Met
 485 490 495

GNCA-P03-007SequenceListing.txt

Glu Ala Glu Phe Arg Lys Gln Glu Glu Val Leu Arg Lys Phe Arg Ala
 500 505 510

His Glu Thr Asn Leu Leu Ile Ala Thr Ser Ile Val Glu Glu Gly Val
 515 520 525

Asp Ile Pro Lys Cys Asn Leu Val Val Arg Phe Asp Leu Pro Thr Glu
 530 535 540

Tyr Arg Ser Tyr Val Gln Ser Lys Gly Arg Ala Arg Ala Pro Ile Ser
 545 550 555 560

Asn Tyr Ile Met Leu Ala Asp Thr Asp Lys Ile Lys Ser Phe Glu Glu
 565 570 575

Asp Leu Lys Thr Tyr Lys Ala Ile Glu Lys Ile Leu Arg Asn Lys Cys
 580 585 590

Ser Lys Ser Val Asp Thr Gly Glu Thr Asp Ile Asp Pro Val Met Asp
 595 600 605

Asp Asp His Val Phe Pro Pro Tyr Val Leu Arg Pro Asp Asp Gly Gly
 610 615 620

Pro Arg Val Thr Ile Asn Thr Ala Ile Gly His Ile Asn Arg Tyr Cys
 625 630 635 640

Ala Arg Leu Pro Ser Asp Pro Phe Thr His Leu Ala Pro Lys Cys Arg
 645 650 655

Thr Arg Glu Leu Pro Asp Gly Thr Phe Tyr Ser Thr Leu Tyr Leu Pro
 660 665 670

Ile Asn Ser Pro Leu Arg Ala Ser Ile Val Gly Pro Pro Met Ser Cys
 675 680 685

Val Arg Leu Ala Glu Arg Val Val Ala Leu Ile Cys Cys Glu Lys Leu
 690 695 700

His Lys Ile Gly Glu Leu Asp Asp His Leu Met Pro Val Gly Lys Glu
 705 710 715 720

Thr Val Lys Tyr Glu Glu Glu Leu Asp Leu His Asp Glu Glu Glu Thr
 725 730 735

Ser Val Pro Gly Arg Pro Gly Ser Thr Lys Arg Arg Gln Cys Tyr Pro
 740 745 750

Lys Ala Ile Pro Glu Cys Leu Arg Asp Ser Tyr Pro Arg Pro Asp Gln
 755 760 765

Pro Cys Tyr Leu Tyr Val Ile Gly Met Val Leu Thr Thr Pro Leu Pro
 770 775 780

Asp Glu Leu Asn Phe Arg Arg Arg Lys Leu Tyr Pro Pro Glu Asp Thr
 785 790 795 800

Thr Arg Cys Phe Gly Ile Leu Thr Ala Lys Pro Ile Pro Gln Ile Pro
 805 810 815

His Phe Pro Val Tyr Thr Arg Ser Gly Glu Val Thr Ile Ser Ile Glu
 820 825 830

GNCA-P03-007SequenceListing.txt

Leu Lys Lys Ser Gly Phe Met Leu Ser Leu Gln Met Leu Glu Leu Ile
835 840 845

Thr Arg Leu His Gln Tyr Ile Phe Ser His Ile Leu Arg Leu Glu Lys
850 855 860

Pro Ala Leu Glu Phe Lys Pro Thr Asp Ala Asp Ser Ala Tyr Cys Val
865 870 875 880

Leu Pro Leu Asn Val Val Asn Asp Ser Ser Thr Leu Asp Ile Asp Phe
885 890 895

Lys Phe Met Glu Asp Ile Glu Lys Ser Glu Ala Arg Ile Gly Ile Pro
900 905 910

Ser Thr Lys Tyr Thr Lys Glu Thr Pro Phe Val Phe Lys Leu Glu Asp
915 920 925

Tyr Gln Asp Ala Val Ile Ile Pro Arg Tyr Arg Asn Phe Asp Gln Pro
930 935 940

His Arg Phe Tyr Val Ala Asp Val Tyr Thr Asp Leu Thr Pro Leu Ser
945 950 955 960

Lys Phe Pro Ser Pro Glu Tyr Glu Thr Phe Ala Glu Tyr Tyr Lys Thr
965 970 975

Lys Tyr Asn Leu Asp Leu Thr Asn Leu Asn Gln Pro Leu Leu Asp Val
980 985 990

Asp His Thr Ser Ser Arg Leu Asn Leu Leu Thr Pro Arg His Leu Asn
995 1000 1005

Gln Lys Gly Lys Ala Leu Pro Leu Ser Ser Ala Glu Lys Arg Lys
1010 1015 1020

Ala Lys Trp Glu Ser Leu Gln Asn Lys Gln Ile Leu Val Pro Glu
1025 1030 1035

Leu Cys Ala Ile His Pro Ile Pro Ala Ser Leu Trp Arg Lys Ala
1040 1045 1050

Val Cys Leu Pro Ser Ile Leu Tyr Arg Leu His Cys Leu Leu Thr
1055 1060 1065

Ala Glu Glu Leu Arg Ala Gln Thr Ala Ser Asp Ala Gly Val Gly
1070 1075 1080

Val Arg Ser Leu Pro Ala Asp Phe Arg Tyr Pro Asn Leu Asp Phe
1085 1090 1095

Gly Trp Lys Lys Ser Ile Asp Ser Lys Ser Phe Ile Ser Ile Ser
1100 1105 1110

Asn Ser Ser Ser Ala Glu Asn Asp Asn Tyr Cys Lys His Ser Thr
1115 1120 1125

Ile Val Pro Glu Asn Ala Ala His Gln Gly Ala Asn Arg Thr Ser
1130 1135 1140

Ser Leu Glu Asn His Asp Gln Met Ser Val Asn Cys Arg Thr Leu
1145 1150 1155

GNCA-P03-007SequenceListing.txt

Leu Ser Glu Ser Pro Gly Lys Leu His Val Glu Val Ser Ala Asp
 1160 1165 1170
 Leu Thr Ala Ile Asn Gly Leu Ser Tyr Asn Gln Asn Leu Ala Asn
 1175 1180 1185
 Gly Ser Tyr Asp Leu Ala Asn Arg Asp Phe Cys Gln Gly Asn Gln
 1190 1195 1200
 Leu Asn Tyr Tyr Lys Gln Glu Ile Pro Val Gln Pro Thr Thr Ser
 1205 1210 1215
 Tyr Ser Ile Gln Asn Leu Tyr Ser Tyr Glu Asn Gln Pro Gln Pro
 1220 1225 1230
 Ser Asp Glu Cys Thr Leu Leu Ser Asn Lys Tyr Leu Asp Gly Asn
 1235 1240 1245
 Ala Asn Lys Ser Thr Ser Asp Gly Ser Pro Val Met Ala Val Met
 1250 1255 1260
 Pro Gly Thr Thr Asp Thr Ile Gln Val Leu Lys Gly Arg Met Asp
 1265 1270 1275
 Ser Glu Gln Ser Pro Ser Ile Gly Tyr Ser Ser Arg Thr Leu Gly
 1280 1285 1290
 Pro Asn Pro Gly Leu Ile Leu Gln Ala Leu Thr Leu Ser Asn Ala
 1295 1300 1305
 Ser Asp Gly Phe Asn Leu Glu Arg Leu Glu Met Leu Gly Asp Ser
 1310 1315 1320
 Phe Leu Lys His Ala Ile Thr Thr Tyr Leu Phe Cys Thr Tyr Pro
 1325 1330 1335
 Asp Ala His Glu Gly Arg Leu Ser Tyr Met Arg Ser Lys Lys Val
 1340 1345 1350
 Ser Asn Cys Asn Leu Tyr Arg Leu Gly Lys Lys Gly Leu Pro
 1355 1360 1365
 Ser Arg Met Val Val Ser Ile Phe Asp Pro Pro Val Asn Trp Leu
 1370 1375 1380
 Pro Pro Gly Tyr Val Val Asn Gln Asp Lys Ser Asn Thr Asp Lys
 1385 1390 1395
 Trp Glu Lys Asp Glu Met Thr Lys Asp Cys Met Leu Ala Asn Gly
 1400 1405 1410
 Lys Leu Asp Glu Asp Tyr Glu Glu Asp Glu Glu Glu Ser
 1415 1420 1425
 Leu Met Trp Arg Ala Pro Lys Glu Glu Ala Asp Tyr Glu Asp Asp
 1430 1435 1440
 Phe Leu Glu Tyr Asp Gln Glu His Ile Arg Phe Ile Asp Asn Met
 1445 1450 1455
 Leu Met Gly Ser Gly Ala Phe Val Lys Lys Ile Ser Leu Ser Pro
 1460 1465 1470

GNCA-P03-007SequenceListing.txt

Phe	Ser	Thr	Thr	Asp	Ser	Ala	Tyr	Glu	Trp	Lys	Met	Pro	Lys	Lys
1475						1480					1485			
Ser	Ser	Leu	Gly	Ser	Met	Pro	Phe	Ser	Ser	Asp	Phe	Glu	Asp	Phe
1490						1495					1500			
Asp	Tyr	Ser	Ser	Trp	Asp	Ala	Met	Cys	Tyr	Leu	Asp	Pro	Ser	Lys
1505						1510					1515			
Ala	Val	Glu	Glu	Asp	Asp	Phe	Val	Val	Gly	Phe	Trp	Asn	Pro	Ser
1520						1525					1530			
Glu	Glu	Asn	Cys	Gly	Val	Asp	Thr	Gly	Lys	Gln	Ser	Ile	Ser	Tyr
1535						1540					1545			
Asp	Leu	His	Thr	Glu	Gln	Cys	Ile	Ala	Asp	Lys	Ser	Ile	Ala	Asp
1550						1555					1560			
Cys	Val	Glu	Ala	Leu	Leu	Gly	Cys	Tyr	Leu	Thr	Ser	Cys	Gly	Glu
1565						1570					1575			
Arg	Ala	Ala	Gln	Leu	Phe	Leu	Cys	Ser	Leu	Gly	Leu	Lys	Val	Leu
1580						1585					1590			
Pro	Val	Ile	Lys	Arg	Thr	Asp	Arg	Glu	Lys	Ala	Leu	Cys	Pro	Thr
1595						1600					1605			
Arg	Glu	Asn	Phe	Asn	Ser	Gln	Gln	Lys	Asn	Leu	Ser	Val	Ser	Cys
1610						1615					1620			
Ala	Ala	Ala	Ser	Val	Ala	Ser	Ser	Arg	Ser	Ser	Val	Leu	Lys	Asp
1625						1630					1635			
Ser	Glu	Tyr	Gly	Cys	Leu	Lys	Ile	Pro	Pro	Arg	Cys	Met	Phe	Asp
1640						1645					1650			
His	Pro	Asp	Ala	Asp	Lys	Thr	Leu	Asn	His	Leu	Ile	Ser	Gly	Phe
1655						1660					1665			
Glu	Asn	Phe	Glu	Lys	Lys	Ile	Asn	Tyr	Arg	Phe	Lys	Asn	Lys	Ala
1670						1675					1680			
Tyr	Leu	Leu	Gln	Ala	Phe	Thr	His	Ala	Ser	Tyr	His	Tyr	Asn	Thr
1685						1690					1695			
Ile	Thr	Asp	Cys	Tyr	Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Ile
1700						1705					1710			
Leu	Asp	Tyr	Leu	Ile	Thr	Lys	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln
1715						1720					1725			
His	Ser	Pro	Gly	Val	Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn
1730						1735					1740			
Asn	Thr	Ile	Phe	Ala	Ser	Leu	Ala	Val	Lys	Tyr	Asp	Tyr	His	Lys
1745						1750					1755			
Tyr	Phe	Lys	Ala	Val	Ser	Pro	Glu	Leu	Phe	His	val	Ile	Asp	Asp
1760						1765					1770			
Phe	Val	Gln	Phe	Gln	Leu	Glu	Lys	Asn	Glu	Met	Gln	Gly	Met	Asp
1775						1780					1785			

GNCA-P03-007SequenceListing.txt

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 Ile Glu Val Pro Lys Ala Met Gly Asp Ile Phe Glu Ser Leu Ala
 1805 1810 1815
 Gly Ala Ile Tyr Met Asp Ser Gly Met Ser Leu Glu Thr Val Trp
 1820 1825 1830
 Gln Val Tyr Tyr Pro Met Met Arg Pro Leu Ile Glu Lys Phe Ser
 1835 1840 1845
 Ala Asn Val Pro Arg Ser Pro Val Arg Glu Leu Leu Glu Met Glu
 1850 1855 1860
 Pro Glu Thr Ala Lys Phe Ser Pro Ala Glu Arg Thr Tyr Asp Gly
 1865 1870 1875
 Lys Val Arg Val Thr Val Glu Val Val Gly Lys Gly Lys Phe Lys
 1880 1885 1890
 Gly Val Gly Arg Ser Tyr Arg Ile Ala Lys Ser Ala Ala Ala Arg
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 Arg Ala Leu Arg Ser Leu Lys Ala Asn Gln Pro Gln Val Pro Asn
 1910 1915 1920

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Pro	Arg	Asp	Phe	Gln	Val	Glu	Leu	Leu	Ala	Thr	Ala	Tyr	Glu	Arg	Asn	
							20		25				30			
acg	att	att	tgc	ctg	ggc	cat	cga	agt	tcc	aag	gag	ttt	ata	gcc	ctc	144
Thr	Ile	Ile	Cys	Leu	Gly	His	Arg	Ser	Ser	Lys	Glu	Phe	Ile	Ala	Leu	
						35		40				45				
aag	ctg	ctc	cag	gag	ctg	tcg	cgt	cga	gca	cgc	cga	cat	ggt	cgt	gtc	192
Lys	Leu	Leu	Gln	Glu	Leu	Ser	Arg	Arg	Ala	Arg	Arg	Arg	His	Gly	Arg	Val
						50		55				60				
agt	gtc	tat	ctc	agt	tgc	gag	gtt	ggc	acc	agc	acg	gaa	cca	tgc	tcc	240
Ser	Val	Tyr	Leu	Ser	Cys	Glu	Val	Gly	Thr	Ser	Thr	Glu	Pro	Cys	Ser	
						65		70			75			80		
atc	tac	acg	atg	ctc	acc	cac	ttg	act	gac	ctg	cgg	gtg	tgg	cag	gag	288
Ile	Tyr	Thr	Met	Leu	Thr	His	Leu	Thr	Asp	Leu	Arg	Val	Trp	Gln	Glu	
						85		90					95			
cag	ccg	gat	atg	caa	att	ccc	ttt	gat	cat	tgc	tgg	acg	gac	tat	cac	336
Gln	Pro	Asp	Met	Gln	Ile	Pro	Phe	Asp	His	Cys	Trp	Thr	Asp	Tyr	His	
						100		105				110				
gtt	tcc	atc	cta	cg	cca	gag	gga	ttt	ctt	tat	ctg	ctc	gaa	act	cgc	384

GNCA-P03-007SequenceListing.txt

Val	Ser	Ile	Leu	Arg	Pro	Glu	Gly	Phe	Leu	Tyr	Leu	Leu	Glu	Thr	Arg	
						115		120					125			
gag	ctg	ctg	ctg	agc	agc	gtc	gaa	ctg	atc	gtg	ctg	gaa	gat	tgt	cat	432
Glu	Leu	Leu	Leu	Ser	Ser	Val	Glu	Leu	Ile	Val	Leu	Glu	Asp	Cys	His	
						130		135			140					
gac	agc	gcc	gtt	tat	cag	agg	ata	agg	cct	ctg	tcc	gag	aat	cac	att	480
Asp	Ser	Ala	Val	Tyr	Gln	Arg	Ile	Arg	Pro	Leu	Phe	Glu	Asn	His	Ile	
						145		150			155			160		
atg	cca	gca	cca	ccg	gca	gac	agg	cca	cg	att	ctc	gga	ctc	gct	gga	528
Met	Pro	Ala	Pro	Pro	Ala	Asp	Arg	Pro	Arg	Ile	Leu	Gly	Leu	Ala	Gly	
						165		170			175					
ccg	ctg	cac	agc	gcc	gga	tgt	gag	ctg	cag	caa	ctg	agc	gcc	atg	ctg	576
Pro	Leu	His	Ser	Ala	Gly	Cys	Glu	Leu	Gln	Gln	Leu	Ser	Ala	Met	Leu	
						180		185			190					
gcc	acc	ctg	gag	cag	agt	gtg	ctt	tgc	cag	atc	gag	acg	gcc	agt	gat	624
Ala	Thr	Leu	Glu	Gln	Ser	Val	Leu	Cys	Gln	Ile	Glu	Thr	Ala	Ser	Asp	
						195		200			205					
att	gtc	acc	gtg	ttg	cgt	tac	tgt	tcc	cga	ccg	cac	gaa	tac	atc	gta	672
Ile	Val	Thr	Val	Leu	Arg	Tyr	Cys	Ser	Arg	Pro	His	Glu	Tyr	Ile	Val	
						210		215			220					
cag	tgc	gcc	ccc	tcc	gag	atg	gac	gaa	ctg	tcc	ctg	gtg	ctt	gcc	gat	720
Gln	Cys	Ala	Pro	Phe	Glu	Met	Asp	Glu	Leu	Ser	Leu	Val	Leu	Ala	Asp	
						225		230			235			240		
gtg	ctc	aac	aca	cac	aag	tcc	ttt	tta	ttg	gac	cac	cgc	tac	gat	ccc	768
Val	Leu	Asn	Thr	His	Lys	Ser	Phe	Leu	Leu	Asp	His	Arg	Tyr	Asp	Pro	
						245		250			255					
tac	gaa	atc	tac	ggc	aca	gac	cag	ttt	atg	gac	gaa	ctg	aaa	gac	ata	816
Tyr	Glu	Ile	Tyr	Gly	Thr	Asp	Gln	Phe	Met	Asp	Glu	Leu	Lys	Asp	Ile	
						260		265			270					
ccc	gat	ccc	aag	gtg	gac	ccc	ctg	aac	gtc	atc	aac	tca	cta	ctg	gtc	864
Pro	Asp	Pro	Lys	Val	Asp	Pro	Leu	Asn	Val	Ile	Asn	Ser	Leu	Leu	Val	
						275		280			285					
gtg	ctg	cac	gag	atg	ggt	cct	tgg	tgc	acg	cag	cgg	gct	gca	cat	cac	912
Val	Leu	His	Glu	Met	Gly	Pro	Trp	Cys	Thr	Gln	Arg	Ala	Ala	His	His	
						290		295			300					
ttt	ttc	caa	tgc	aat	gag	aag	tta	aag	gtg	aag	acg	ccg	cac	gaa	cgt	960
Phe	Tyr	Gln	Cys	Asn	Glu	Lys	Leu	Lys	Val	Lys	Thr	Pro	His	Glu	Arg	
						305		310			315			320		
cac	tac	ttg	ctg	tac	tgc	cta	gtg	agc	acg	gcc	ctt	atc	caa	ctg	tac	1008
His	Tyr	Leu	Tyr	Cys	Leu	Val	Ser	Thr	Ala	Leu	Ile	Gln	Leu	Tyr		
						325		330			335					
tcc	ctc	tgc	gaa	cac	gca	tcc	cat	cga	cat	tta	gga	agt	ggc	agc	gat	1056
Ser	Leu	Cys	Glu	His	Ala	Phe	His	Arg	His	Leu	Gly	Ser	Gly	Ser	Asp	
						340		345			350					
tca	cgc	cag	acc	atc	gaa	cgc	tat	tcc	agc	ccc	aag	gtg	cga	cgt	ctg	1104
Ser	Arg	Gln	Thr	Ile	Glu	Arg	Tyr	Ser	Ser	Pro	Lys	Val	Arg	Arg	Leu	
						355		360			365					
ttg	cag	aca	ctg	agg	tgc	ttc	aag	ccg	gaa	gag	gtg	cac	acc	caa	gcg	1152
Leu	Gln	Thr	Leu	Arg	Cys	Phe	Lys	Pro	Glu	Glu	Val	His	Thr	Gln	Ala	
						370		375			380					
gac	gga	ctg	cgc	aga	atg	cgg	cat	cag	gtg	gat	cag	gcg	gac	ttc	aat	1200
Asp	Gly	Leu	Arg	Arg	Met	Arg	His	Gln	Val	Asp	Gln	Ala	Asp	Phe	Asn	
						385		390			395			400		
cgg	tta	tct	cat	acg	ctg	gaa	agc	aag	tgc	cga	atg	gtg	gat	caa	atg	1248
Arg	Leu	Ser	His	Thr	Leu	Glu	Ser	Lys	Cys	Arg	Met	Val	Asp	Gln	Met	
						405		410			415					
gac	caa	ccg	ccg	acg	gag	aca	cga	gcc	ctg	gtg	gcc	act	ctt	gag	cag	1296
Asp	Gln	Pro	Thr	Gl	Th	Arg	Ala	Leu	Val	Ala	Thr	Leu	Glu	Gln		
						420		425			430					
att	ctg	cac	acg	aca	gag	gac	agg	cag	acg	aac	aga	agc	gcc	gct	cgg	1344
Ile	Leu	His	Thr	Thr	Glu	Asp	Arg	Gln	Thr	Asn	Arg	Ser	Ala	Ala	Arg	
						435		440			445					
gtg	act	cct	act	cct	act	ccc	gct	cat	gct	aag	ccg	aaa	cct	agc	tct	1392

GNCA-P03-007SequenceListing.txt

val	Thr	Pro	Thr	Pro	Thr	Pro	Ala	His	Ala	Lys	Pro	Lys	Pro	Ser	Ser	
450							455				460					
ggt	gcc	aac	act	gca	caa	cca	cga	act	cgt	aga	cgt	gtg	tac	acc	agg	1440
Gly	Ala	Asn	Thr	Ala	Gln	Pro	Arg	Thr	Arg	Arg	Arg	Val	Tyr	Thr	Arg	
465						470				475					480	
cgc	cac	cac	cg	gat	cac	aat	gat	ggc	agc	gac	acg	ctc	tgc	gca	ctg	1488
Arg	His	His	Arg	Asp	His	Asn	Asp	Gly	Ser	Asp	Thr	Leu	Cys	Ala	Leu	
485							490				495					
att	tac	tgc	aac	cag	aac	cac	acg	gct	cgc	gtg	ctc	ttt	gag	ctt	cta	1536
Ile	Tyr	Cys	Asn	Gln	Asn	His	Thr	Ala	Arg	Val	Leu	Phe	Glu	Leu	Leu	
500							505				510					
gcg	gag	att	agc	aga	cgt	gat	ccc	gat	ctc	aag	ttc	cta	cgc	tgc	cag	1584
Ala	Glu	Ile	Ser	Arg	Arg	Asp	Pro	Asp	Leu	Lys	Phe	Leu	Arg	Cys	Gln	
515							520				525					
tac	acc	acg	gac	cg	gt	gca	gat	ccc	acc	acg	gag	ccc	aaa	gag	gct	1632
Tyr	Thr	Thr	Asp	Arg	Val	Ala	Asp	Pro	Thr	Thr	Glu	Pro	Lys	Glu	Ala	
530						535				540						
gag	ttg	gag	cac	cg	cg	cag	gaa	gag	gt	cta	aag	cgc	ttc	cgc	atg	1680
Glu	Leu	Glu	His	Arg	Arg	Gln	Glu	Glu	Val	Leu	Lys	Arg	Phe	Arg	Met	
545						550				555					560	
cat	gac	tgc	aat	gtc	ctg	atc	gg	act	tcg	gt	ctg	gaa	gag	ggc	atc	1728
His	Asp	Cys	Asn	Val	Leu	Ile	Gly	Thr	Ser	Val	Leu	Glu	Glu	Gly	Ile	
565						570				575						
gat	gt	ccc	aag	tgc	aat	ttg	gt	gt	cgc	tgg	gat	ccg	cca	acc	aca	1776
Asp	Val	Pro	Lys	Cys	Asn	Leu	Val	Val	Arg	Trp	Asp	Pro	Pro	Thr	Thr	
580						585				590						
tat	cgc	agt	ta	cgt	cag	tgc	aaa	gg	cga	gcc	cgt	gct	gct	cca	gcc	1824
Tyr	Arg	Ser	Tyr	Val	Gln	Cys	Lys	Gly	Arg	Ala	Arg	Ala	Ala	Pro	Ala	
595						600				605						
tat	cat	gtc	att	ctc	gtc	gct	ccg	agt	tat	aaa	agc	cca	act	gt	gg	1872
Tyr	His	Val	Ile	Leu	Val	Ala	Pro	Ser	Tyr	Lys	Ser	Pro	Thr	Val	Gly	
610						615				620						
tca	gt	cag	ctg	acc	gat	cg	agt	cat	cg	tat	att	tgc	g	act	gg	1920
Ser	Val	Gln	Leu	Thr	Asp	Arg	Ser	His	Arg	Tyr	Ile	Cys	Ala	Thr	Gly	
625						630				635					640	
gat	act	aca	gag	g	gac	agc	gac	tct	gat	gat	tca	g	atg	cca	aac	1968
Asp	Thr	Thr	Glu	Ala	Asp	Ser	Asp	Ser	Asp	Asp	Ser	Ala	Met	Pro	Asn	
645						650				655						
tcg	tcc	ggc	tcg	gat	ccc	tat	act	ttt	ggc	acg	gca	cg	gga	acc	gt	2016
Ser	Ser	Gly	Ser	Asp	Pro	Tyr	Thr	Phe	Gly	Thr	Ala	Arg	Gly	Thr	Val	
660						665				670						
aag	atc	ctc	aac	ccc	gaa	gt	t	tc	agt	aaa	caa	cca	ccg	aca	g	2064
Lys	Ile	Leu	Asn	Pro	Glu	Val	Phe	Ser	Lys	Gln	Pro	Pro	Thr	Ala	Cys	
675						680				685						
gac	att	aag	ctg	cag	gag	atc	cag	gac	gaa	ttg	cca	gcc	gca	g	cag	2112
Asp	Ile	Lys	Leu	Gln	Glu	Ile	Gln	Asp	Glu	Leu	Pro	Ala	Ala	Ala	Gln	
690						695				700						
ctg	gat	acg	agc	aa	tcc	agc	gac	gaa	gcc	gt	agc	atg	agt	aa	ac	2160
Leu	Asp	Thr	Ser	Asn	Ser	Ser	Asp	Glu	Ala	Val	Ser	Met	Ser	Asn	Thr	
705						710				715					720	
tct	cca	agc	gag	agc	agt	aca	gaa	caa	aaa	tcc	aga	cgc	t	tc	cag	2208
Ser	Pro	Ser	Glu	Ser	Ser	Thr	Glu	Gln	Lys	Ser	Arg	Arg	Phe	Gln	Cys	
725						730				735						
gag	ctg	agc	tct	tta	acg	gag	cca	gaa	gac	aca	agt	gat	act	aca	gcc	2256
Glu	Leu	Ser	Ser	Leu	Thr	Glu	Pro	Glu	Asp	Thr	Ser	Asp	Thr	Thr	Ala	
740						745				750						
gaa	atc	at	gat	act	gt	cat	agt	tta	g	cc	agc	acc	ac	tg	gt	2304
Glu	Ile	Asp	Thr	Ala	His	Ser	Leu	Ala	Ser	Thr	Thr	Lys	Asp	Leu	Val	
755						760				765						
cat	caa	atg	gca	cag	tat	cgc	gaa	atc	gag	cag	atg	ctg	cta	tcc	aag	2352
His	Gln	Met	Ala	Gln	Tyr	Arg	Glu	Ile	Glu	Gln	Met	Leu	Leu	Ser	Lys	
770						775				780						
tgc	gcc	aac	aca	gag	ccg	ccg	gag	cag	gag	cag	agt	gag	g	cg	aa	2400

GNCA-P03-007SequenceListing.txt

Cys	Ala	Asn	Thr	Glu	Pro	Pro	Glu	Gln	Glu	Gln	Ser	Glu	Ala	Glu	Arg
785				790					795						800
ttt	agt	gcc	tgc	ctg	gcc	gca	tac	cga	ccc	aag	ccg	cac	ctg	cta	aca
Phe	Ser	Ala	Cys	Leu	Ala	Ala	Tyr	Arg	Pro	Lys	Pro	His	Leu	Leu	Thr
				805					810						815
ggc	gcc	tcc	gtg	gat	ctg	ggt	tct	gct	ata	gct	ttg	gtc	aac	aag	tac
Gly	Ala	Ser	Val	Asp	Leu	Gly	Ser	Ala	Ile	Ala	Leu	Val	Asn	Lys	Tyr
				820					825						830
tgc	gcc	cga	ctg	cca	agc	gac	acg	ttc	acc	aag	ttg	acg	gcg	ttg	tgg
Cys	Ala	Arg	Leu	Pro	Ser	Asp	Thr	Phe	Thr	Lys	Leu	Thr	Ala	Leu	Trp
				835					840						845
cgc	tgc	acc	cga	aac	gaa	agg	gct	gga	gtg	acc	ctg	ttt	cag	tac	aca
Arg	Cys	Thr	Arg	Asn	Glu	Arg	Ala	Gly	Val	Thr	Leu	Phe	Gln	Tyr	Thr
				850					855						860
ctc	cgt	ctg	ccc	atc	aac	tcg	cca	ttg	aag	cat	gac	att	gtg	ggt	ctt
Leu	Arg	Leu	Pro	Ile	Asn	Ser	Pro	Leu	Lys	His	Asp	Ile	Val	Gly	Leu
				865					870						880
ccg	atg	cca	act	caa	aca	ttg	gcc	cgc	cga	ctg	gct	gcc	ttg	cag	gct
Pro	Met	Pro	Thr	Gln	Thr	Leu	Ala	Arg	Arg	Leu	Ala	Ala	Leu	Gln	Ala
				885					890						895
tgc	gtg	gaa	ctg	cac	agg	atc	ggt	gag	tta	gac	gat	cag	ttg	cag	cct
Cys	Val	Glu	Leu	His	Arg	Ile	Gly	Glu	Leu	Asp	Asp	Gln	Leu	Gln	Pro
				900					905						910
atc	ggc	aag	gag	gga	ttt	cgt	gcc	ctg	gag	ccg	gac	tgg	gag	tgc	ttt
Ile	Gly	Lys	Glu	Gly	Phe	Arg	Ala	Leu	Glu	Pro	Asp	Trp	Glu	Cys	Phe
				915					920						925
gaa	ctg	gag	cca	gag	gac	gaa	cag	att	gtg	cag	cta	agc	gat	gaa	cca
Glu	Leu	Glu	Pro	Glu	Asp	Glu	Gln	Ile	Val	Gln	Leu	Ser	Asp	Glu	Pro
				930					935						940
cgt	ccg	gga	aca	acg	aag	cgt	cgt	cag	tac	tat	tac	aaa	cgc	att	gca
Arg	Pro	Gly	Thr	Thr	Lys	Arg	Arg	Gln	Tyr	Tyr	Tyr	Lys	Arg	Ile	Ala
				945					950						960
tcc	gaa	ttt	tgc	gat	tgc	cgt	ccc	gtt	gcc	gga	gcg	cca	tgc	tat	ttg
Ser	Glu	Phe	Cys	Asp	Cys	Arg	Pro	Val	Ala	Gly	Ala	Pro	Cys	Tyr	Leu
				965					970						975
tac	ttt	atc	caa	ctg	acg	ctc	caa	tgt	ccg	att	ccc	gaa	gag	caa	aac
Tyr	Phe	Ile	Gln	Leu	Thr	Leu	Gln	Cys	Pro	Ile	Pro	Glu	Glu	Gln	Asn
				980					985						990
acg	cgg	gga	cgc	aag	att	tat	ccg	ccc	gaa	gat	gcg	cag	cag	gga	ttc
Thr	Arg	Gly	Arg	Lys	Ile	Tyr	Pro	Pro	Glu	Asp	Ala	Gln	Gln	Gly	Phe
				995					1000						1005
ggc	att	cta	acc	acc	aaa	cgg	ata	ccc	aag	ctg	agt	gct	ttc	tcg	
Gly	Ile	Leu	Thr	Thr	Lys	Arg	Ile	Pro	Lys	Leu	Ser	Ala	Phe	Ser	
				1010					1015						1020
ata	ttc	acg	cgt	tcc	ggg	gag	gtg	aag	gtt	tcc	ctg	gag	tta	gct	
Ile	Phe	Thr	Arg	Ser	Gly	Glu	Val	Lys	Val	Ser	Leu	Glu	Leu	Ala	
				1025					1030						1035
aag	gaa	cgc	gtg	att	cta	act	agc	gaa	caa	ata	gtc	tgc	atc	aac	
Lys	Glu	Arg	Val	Ile	Leu	Thr	Ser	Glu	Gln	Ile	Val	Cys	Ile	Asn	
				1040					1045						1050
gga	ttt	tta	aac	tac	acg	ttc	acc	aat	gta	ctg	cgt	ttg	caa	aag	
Gly	Phe	Leu	Asn	Tyr	Thr	Phe	Thr	Asn	Val	Leu	Arg	Leu	Gln	Lys	
				1055					1060						1065
ttt	ctg	atg	ctc	ttc	gat	ccg	gac	tcc	acg	gaa	aat	tgt	gta	ttc	
Phe	Leu	Met	Leu	Phe	Asp	Pro	Asp	Ser	Thr	Glu	Asn	Cys	Val	Phe	
				1070					1075						1080
att	gtg	ccc	acc	gtg	aag	gca	cca	gct	ggc	ggc	aag	cac	atc	gac	
Ile	Val	Pro	Thr	Val	Lys	Ala	Pro	Ala	Gly	Gly	Lys	His	Ile	Asp	
				1085					1090						1095
tgg	cag	ttt	ctg	gag	ctg	atc	caa	gct	aat	gga	aat	aca	atg	cca	
Trp	Gln	Phe	Leu	Glu	Leu	Ile	Gln	Ala	Ash	Gly	Asn	Thr	Met	Pro	
				1100					1105						1110
cg	gca	gtg	ccc	gat	gag	gag	cgc	cag	gct	cag	ccg	ttt	gat	ccg	

GNCA-P03-007SequenceListing.txt															
Arg	Ala	Val	Pro	Asp	Glu	Glu	Arg	Gln	Ala	Gln	Pro	Phe	Asp	Pro	
1115					1120					1125					
caa	cgc	ttc	cag	gat	gcc	gtc	gtt	atg	ccg	tgg	tat	cgc	aac	cag	
Gln	Arg	Phe	Gln	Asp	Ala	Val	Val	Val	Met	Pro	Trp	Tyr	Arg	Asn	Gln
1130					1135					1140					
gat	caa	ccg	cag	tat	ttc	tat	gtg	gcg	gag	ata	tgt	cca	cat	cta	
Asp	Gln	Pro	Gln	Tyr	Phe	Tyr	Val	Ala	Glu	Ile	Cys	Pro	His	Leu	
1145					1150					1155					
tcc	cca	ctc	agc	tgc	ttc	cct	ggt	gac	aac	tac	cgc	acg	ttc	aag	
Ser	Pro	Leu	Ser	Cys	Phe	Pro	Gly	Asp	Asn	Tyr	Arg	Thr	Phe	Lys	
1160					1165					1170					
cac	tac	tac	ctc	gtc	aag	tat	ggt	ctg	acc	ata	cag	aat	acc	tcg	
His	Tyr	Tyr	Leu	Val	Lys	Tyr	Gly	Leu	Thr	Ile	Gln	Asn	Thr	Ser	
1175					1180					1185					
cag	ccg	cta	ttg	gac	gtg	gat	cac	acc	agt	gct	cgg	tta	aac	tcc	
Gln	Pro	Leu	Leu	Asp	Val	Asp	His	Thr	Ser	Ala	Arg	Leu	Asn	Phe	
1190					1195					1200					
ctc	acg	cca	cga	tac	gtt	aat	cgc	aag	ggc	gtt	gct	ctg	ccc	act	
Leu	Thr	Pro	Arg	Tyr	Val	Asn	Arg	Lys	Gly	Val	Ala	Leu	Pro	Thr	
1205					1210					1215					
agt	tcg	gag	gag	aca	aag	cgg	gca	aag	cgc	gag	aat	ctc	gaa	cag	
Ser	Ser	Glu	Glu	Thr	Lys	Arg	Ala	Lys	Arg	Glu	Asn	Leu	Glu	Gln	
1220					1225					1230					
aag	cag	atc	ctt	gtg	cca	gag	ctc	tgc	act	gtg	cat	cca	tcc	ccc	
Lys	Gln	Ile	Leu	Val	Pro	Glu	Leu	Cys	Thr	Val	His	Pro	Phe	Pro	
1235					1240					1245					
gcc	tcc	ttg	tgg	cga	act	gcc	gtg	tgc	ctg	ccc	tgc	atc	ctg	tac	
Ala	Ser	Leu	Trp	Arg	Thr	Ala	Val	Cys	Leu	Pro	Cys	Ile	Leu	Tyr	
1250					1255					1260					
cgc	ata	aat	ggt	ctt	cta	ttg	gcc	gac	gat	att	cgg	aaa	cag	gtt	
Arg	Ile	Asn	Gly	Leu	Leu	Leu	Ala	Asp	Asp	Ile	Arg	Lys	Gln	Val	
1265					1270					1275					
tct	gcf	gat	ctg	ggg	ctg	gga	agg	caa	cag	atc	gaa	gat	gag	gat	
Ser	Ala	Asp	Leu	Gly	Leu	Gly	Arg	Gln	Gln	Ile	Glu	Asp	Glu	Asp	
1280					1285					1290					
ttc	gag	tgg	ccc	atg	ctg	gac	ttt	ggg	tgg	agt	cta	tcg	gag	gtg	
Phe	Glu	Trp	Pro	Met	Leu	Asp	Phe	Gly	Trp	Ser	Leu	Ser	Glu	Val	
1295					1300					1305					
ctc	aag	aaa	tcg	cgg	gag	tcc	aaa	caa	aag	gag	tcc	ctt	aag	gat	
Leu	Lys	Lys	Ser	Arg	Glu	Ser	Lys	Gln	Lys	Glu	Ser	Leu	Lys	Asp	
1310					1315					1320					
gat	act	att	aat	ggc	aaa	gac	tta	gct	gat	gtt	gaa	aag	aaa	ccg	
Asp	Thr	Ile	Asn	Gly	Lys	Asp	Leu	Ala	Asp	Val	Glu	Lys	Lys	Pro	
1325					1330					1335					
act	agc	gag	gag	acc	caa	cta	gat	aag	gat	tca	aaa	gac	gat	aag	
Thr	Ser	Glu	Glu	Thr	Gln	Leu	Asp	Lys	Asp	Ser	Lys	Asp	Asp	Lys	
1340					1345					1350					
gtt	gag	aaa	agt	gct	att	gaa	cta	atc	att	gag	gga	gag	gag	aag	
Val	Glu	Lys	Ser	Ala	Ile	Glu	Leu	Ile	Ile	Glu	Gly	Glu	Glu	Lys	
1355					1360					1365					
ctg	caa	gag	gct	gat	gac	ttc	att	gag	ata	ggc	act	tgg	tca	aac	
Leu	Gln	Glu	Ala	Asp	Asp	Phe	Ile	Glu	Ile	Gly	Thr	Trp	Ser	Asn	
1370					1375					1380					
gat	atg	gcc	gac	gat	ata	gct	agt	ttt	aac	caa	gaa	gac	gac	gac	
Asp	Met	Ala	Asp	Asp	Ile	Ala	Ser	Phe	Asn	Gln	Glu	Asp	Asp	Asp	
1385					1390					1395					
gag	gat	gac	gcc	ttc	cat	ctc	cca	gtt	tta	ccg	gca	aac	gtt	aag	
Glu	Asp	Asp	Ala	Phe	His	Leu	Pro	Val	Leu	Pro	Ala	Asn	Val	Lys	
1400					1405					1410					
ttc	tgt	gat	cag	caa	acg	cgc	tac	ggt	tgc	ccc	aca	ttt	tgg	gat	
Phe	Cys	Asp	Gln	Gln	Thr	Arg	Tyr	Gly	Ser	Pro	Thr	Phe	Trp	Asp	
1415					1420					1425					
gtg	agc	aat	ggc	gaa	agc	ggc	ttc	aag	ggt	cca	aag	agc	agt	cag	

GNCA-P03-007SequenceListing.txt														
Val	Ser	Asn	Gly	Glu	Ser	Gly	Phe	Lys	Gly	Pro	Lys	Ser	Ser	Gln
1430						1435					1440			
aat	aag	cag	ggt	ggc	aag	ggc	aaa	gca	aag	ggt	ccg	gca	aag	ccc
Asn	Lys	Gln	Gly	Gly	Lys	Gly	Lys	Ala	Lys	Gly	Pro	Ala	Lys	Pro
1445						1450					1455			
aca	ttt	aac	tat	tat	gac	tcg	gac	aat	tcg	ctg	ggt	tcc	agc	tac
Thr	Phe	Asn	Tyr	Tyr	Asp	Ser	Asp	Asn	Ser	Leu	Gly	Ser	Ser	Tyr
1460						1465					1470			
gat	gac	gac	gat	aac	gca	ggt	ccg	ctc	aat	tac	atg	cat	cac	aac
Asp	Asp	Asp	Asp	Asn	Ala	Gly	Pro	Leu	Asn	Tyr	Met	His	His	Asn
1475						1480					1485			
tac	agt	tcg	gat	gac	gac	gat	gtg	gca	gat	gat	atc	gat	gcg	gga
Tyr	Ser	Ser	Asp	Asp	Asp	Asp	Val	Ala	Asp	Asp	Ile	Asp	Ala	Gly
1490						1495					1500			
cgc	att	gcg	ttc	acc	tcc	aag	aat	gaa	gcf	gag	act	att	gaa	acc
Arg	Ile	Ala	Phe	Thr	Ser	Lys	Asn	Glu	Ala	Glu	Thr	Ile	Glu	Thr
1505						1510					1515			
gca	cag	gaa	gtg	gaa	aag	cgc	cag	aag	cag	ctg	tcc	atc	atc	cag
Ala	Gln	Glu	Val	Glu	Lys	Arg	Gln	Lys	Gln	Leu	Ser	Ile	Ile	Gln
1520						1525					1530			
gcg	acc	aat	gct	aac	gag	cgg	cag	tat	cag	cag	aca	aag	aac	ctg
Ala	Thr	Asn	Ala	Asn	Glu	Arg	Gln	Tyr	Gln	Gln	Thr	Lys	Asn	Leu
1535						1540					1545			
ctc	att	gga	ttc	aat	ttt	aag	cat	gag	gac	cag	aag	gaa	cct	gcc
Leu	Ile	Gly	Phe	Asn	Phe	Lys	His	Glu	Asp	Gln	Lys	Glu	Pro	Ala
1550						1555					1560			
act	ata	aga	tat	gaa	gaa	tcc	ata	gct	aag	ctc	aaa	acg	gaa	ata
Thr	Ile	Arg	Tyr	Glu	Glu	Ser	Ile	Ala	Lys	Leu	Lys	Thr	Glu	Ile
1565						1570					1575			
gaa	tcc	ggc	ggc	atg	ttg	gtg	ccg	cac	gac	cag	cag	ttg	gtt	cta
Glu	Ser	Gly	Gly	Met	Leu	Val	Pro	His	Asp	Gln	Gln	Leu	Val	Leu
1580						1585					1590			
aaa	aga	agt	gat	gcc	gct	gag	gct	cag	gtt	gca	aag	gta	tcg	atg
Lys	Arg	Ser	Asp	Ala	Ala	Glu	Ala	Gln	Val	Ala	Lys	Val	Ser	Met
1595						1600					1605			
atg	gag	cta	ttg	aag	cag	ctg	ctg	ccg	tat	gta	aat	gaa	gat	gtg
Met	Glu	Leu	Leu	Lys	Gln	Leu	Leu	Pro	Tyr	Val	Asn	Glu	Asp	Val
1610						1615					1620			
ctg	gcc	aaa	aag	ctg	ggt	gat	agg	cgc	gag	ctt	ctg	ctg	tcg	gat
Leu	Ala	Lys	Lys	Leu	Gly	Asp	Arg	Arg	Glu	Leu	Leu	Leu	Ser	Asp
1625						1630					1635			
ttg	gta	gag	cta	aat	gca	gat	tgg	gta	gcf	cga	cat	gag	cag	gag
Leu	Val	Glu	Leu	Asn	Ala	Asp	Trp	Val	Ala	Arg	His	Glu	Gln	Glu
1640						1645					1650			
acc	tac	aat	gta	atg	gga	tgc	gga	gat	agt	ttt	gac	aac	tat	aac
Thr	Tyr	Asn	Val	Met	Gly	Cys	Gly	Asp	Ser	Phe	Asp	Asn	Tyr	Asn
1655						1660					1665			
gat	cat	cat	cg	ctg	aac	ttg	gat	gaa	aag	caa	ctg	aaa	ctg	caa
Asp	His	His	Arg	Leu	Asn	Leu	Asp	Glu	Lys	Gln	Leu	Lys	Leu	Gln
1670						1675					1680			
tac	gaa	cga	att	gaa	att	gag	cca	cct	act	tcc	acg	aag	gcc	ata
Tyr	Glu	Arg	Ile	Glu	Ile	Glu	Pro	Pro	Thr	Ser	Thr	Lys	Ala	Ile
1685						1690					1695			
acc	tca	gcc	ata	tta	cca	gct	ggc	ttc	agt	tcc	gat	cga	caa	ccg
Thr	Ser	Ala	Ile	Leu	Pro	Ala	Gly	Phe	Ser	Phe	Asp	Arg	Gln	Pro
1700						1705					1710			
gat	cta	gtg	ggc	cat	cca	gga	ccc	agt	ccc	agc	atc	att	ttg	caa
Asp	Leu	Val	Gly	His	Pro	Gly	Pro	Ser	Pro	Ser	Ile	Ile	Leu	Gln
1715						1720					1725			
gcc	ctc	aca	atg	tcc	aat	gct	aac	gat	ggc	atc	aat	ctg	gag	cga
Ala	Leu	Thr	Met	Ser	Asn	Ala	Ash	Asp	Gly	Ile	Asn	Leu	Glu	Arg
1730						1735					1740			
ctg	gag	aca	att	gga	gat	tcc	ttt	cta	aag	tat	gcc	att	acc	acc

GNCA-P03-007SequenceListing.txt														
Leu	Glu	Thr	Ile	Gly	Asp	Ser	Phe	Leu	Lys	Tyr	Ala	Ile	Thr	Thr
1745						1750					1755			
tac	ttg	tac	atc	acc	tac	gag	aat	gtg	cac	gag	gga	aaa	cta	agt
Tyr	Leu	Tyr	Ile	Thr	Tyr	Glu	Asn	Val	His	Glu	Gly	Lys	Leu	Ser
1760						1765					1770			
cac	ctg	cgc	tcc	aag	cag	gtt	gcc	aat	ctc	aat	ctc	tat	cgt	ctg
His	Leu	Arg	Ser	Lys	Gln	Val	Ala	Asn	Leu	Asn	Leu	Tyr	Arg	Leu
1775						1780					1785			
ggc	aga	cgt	aag	aga	ctg	ggt	gaa	tat	atg	ata	gcc	act	aaa	tcc
Gly	Arg	Arg	Lys	Arg	Leu	Gly	Glu	Tyr	Met	Ile	Ala	Thr	Lys	Phe
1790						1795					1800			
gag	ccg	cac	gac	aat	tgg	ctg	cca	ccc	tgc	tac	tac	gtg	cca	aag
Glu	Pro	His	Asp	Asn	Trp	Leu	Pro	Pro	Cys	Tyr	Tyr	Val	Pro	Lys
1805						1810					1815			
gag	cta	gag	aag	gcg	ctc	atc	gag	gcg	aag	atc	ccc	act	cac	cat
Glu	Leu	Glu	Lys	Ala	Leu	Ile	Glu	Ala	Lys	Ile	Pro	Thr	His	His
1820						1825					1830			
tgg	aag	ctg	gcc	gat	ctg	cta	gac	att	aag	aac	cta	agc	agt	gtg
Trp	Lys	Leu	Ala	Asp	Leu	Leu	Asp	Ile	Lys	Asn	Leu	Ser	Ser	Val
1835						1840					1845			
caa	atc	tgc	gag	atg	gtt	cgc	gaa	aaa	gcc	gat	gcc	ctg	ggc	ttg
Gln	Ile	Cys	Glu	Met	Val	Arg	Glu	Lys	Ala	Asp	Ala	Leu	Gly	Leu
1850						1855					1860			
gag	cag	aat	ggg	ggt	gcc	caa	aat	gga	caa	ctt	gac	gac	tcc	aat
Glu	Gln	Asn	Gly	Gly	Ala	Gln	Asn	Gly	Gln	Leu	Asp	Asp	Ser	Asn
1865						1870					1875			
gat	agc	tgc	aat	gat	ttt	agc	tgt	ttt	att	ccc	tac	aac	ctt	gtt
Asp	Ser	Cys	Asn	Asp	Phe	Ser	Cys	Phe	Ile	Pro	Tyr	Asn	Leu	Val
1880						1885					1890			
tcg	caa	cac	agc	att	ccg	gat	aag	tct	att	gcc	gat	tgc	gtc	gaa
Ser	Gln	His	Ser	Ile	Pro	Asp	Lys	Ser	Ile	Ala	Asp	Cys	Val	Glu
1895						1900					1905			
gcc	ctc	att	gga	gcc	tat	ctc	att	gag	tgc	gga	ccc	cga	ggg	gct
Ala	Leu	Ile	Gly	Ala	Tyr	Leu	Ile	Glu	Cys	Gly	Pro	Arg	Gly	Ala
1910						1915					1920			
tta	ctc	ttt	atg	gcc	tgg	ctg	ggc	gtg	aga	gtg	ctc	cct	atc	aca
Leu	Leu	Phe	Met	Ala	Trp	Leu	Gly	Val	Arg	Val	Leu	Pro	Ile	Thr
1925						1930					1935			
agg	cag	ttg	gac	ggg	ggt	aac	cag	gag	caa	cga	ata	ccc	ggt	agc
Arg	Gln	Leu	Asp	Gly	Gly	Asn	Gln	Glü	Gln	Arg	Ile	Pro	Gly	Ser
1940						1945					1950			
aca	aaa	ccg	aat	gcc	gaa	aat	gtg	gtc	acc	gtt	tac	ggt	gca	tgg
Thr	Lys	Pro	Asn	Ala	Glu	Asn	Val	Val	Thr	Val	Tyr	Gly	Ala	Trp
1955						1960					1965			
ccc	acg	ccg	cgt	agt	cca	ctg	ctg	cac	ttt	gct	cca	aat	gct	acg
Pro	Thr	Pro	Arg	Ser	Pro	Leu	Leu	His	Phe	Ala	Pro	Asn	Ala	Thr
1970						1975					1980			
gag	gag	ctg	gac	cag	tta	cta	agc	ggc	ttt	gag	gag	ttt	gag	gag
Glu	Glu	Leu	Asp	Gln	Leu	Leu	Ser	Gly	Phe	Glu	Glu	Phe	Glu	Glu
1985						1990					1995			
agt	ttg	gga	tac	aag	ttc	cg	gat	cg	tgc	tac	ctg	ttg	caa	gcc
Ser	Leu	Gly	Tyr	Lys	Phe	Arg	Asp	Arg	Ser	Tyr	Leu	Leu	Gln	Ala
2000						2005					2010			
atg	aca	cat	gcc	agt	tac	acg	ccc	aat	cga	ttg	acg	aat	tgc	tat
Met	Thr	His	Ala	Ser	Tyr	Thr	Pro	Asn	Arg	Leu	Thr	Asp	Cys	Tyr
2015						2020					2025			
cag	cgt	ctg	gag	ttc	ctg	ggc	gat	gct	gtt	cta	gat	tac	ctc	att
Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Val	Leu	Asp	Tyr	Leu	Ile
2030						2035					2040			
acg	cgg	cat	tta	tac	gaa	gat	ccc	cgc	cag	cat	tct	cca	ggc	gca
Thr	Arg	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln	His	Ser	Pro	Gly	Ala
2045						2050					2055			
tta	acg	gat	ttg	cgg	tca	gca	ctg	gtg	aat	aat	aca	ata	ttc	gcc

GNCA-P03-007SequenceListing.txt

Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn	Asn	Thr	Ile	Phe	Ala		
2060						2065					2070					
tcc	ctg	gct	gtt	cgc	cat	ggc	ttc	cac	aag	ttc	ttc	cg	cac	ctc	6264	
Ser	Leu	Ala	Val	Arg	His	Gly	Phe	His	Lys	Phe	Phe	Arg	His	Leu		
	2075					2080					2085					
tcg	ccg	ggc	ctt	aac	gat	gtg	att	gac	cgt	ttt	gtg	cg	atc	cag	6309	
Ser	Pro	Gly	Leu	Asn	Asp	Val	Ile	Asp	Arg	Phe	Val	Arg	Ile	Gln		
	2090					2095					2100					
cag	gag	aat	gga	cac	tgc	atc	agt	gag	gag	tac	tac	tta	ttg	tcc	6354	
Gln	Glu	Asn	Gly	His	Cys	Ile	Ser	Glu	Glu	Tyr	Tyr	Leu	Leu	Ser		
	2105					2110					2115					
gag	gag	gag	tgc	gat	gac	gcc	gag	gac	gtt	gag	gtg	ccc	aag	gca	6399	
Glu	Glu	Glu	Cys	Asp	Asp	Ala	Glu	Asp	Val	Glu	Val	Pro	Lys	Ala		
	2120					2125					2130					
ttg	ggc	gac	gtt	ttc	gag	tcg	atc	gca	ggt	gcc	att	ttt	ctc	gac	6444	
Leu	Gly	Asp	Val	Phe	Glu	Ser	Ile	Ala	Gly	Ala	Ile	Phe	Leu	Asp		
	2135					2140					2145					
tca	aac	atg	tcg	ctg	gac	gtg	gtt	tgg	cac	gt	tat	agc	aac	atg	6489	
Ser	Asn	Met	Ser	Leu	Asp	Val	Val	Trp	His	Val	Tyr	Ser	Asn	Met		
	2150					2155					2160					
atg	agc	ccg	gag	atc	gag	cag	ttc	agc	aac	tca	gtg	cca	aaa	tcg	6534	
Met	Ser	Pro	Glu	Ile	Glu	Gln	Phe	Ser	Asn	Ser	Val	Pro	Lys	Ser		
	2165					2170					2175					
ccc	att	cg	gag	ctc	ctc	gag	ctg	gag	ccg	gaa	acc	gcc	aag	ttc	6579	
Pro	Ile	Arg	Glu	Leu	Leu	Glu	Leu	Glu	Pro	Glu	Thr	Ala	Lys	Phe		
	2180					2185					2190					
ggc	aag	ccc	gag	aag	ctg	g	gat	ggg	cga	cg	gtg	cg	gtt	acc	6624	
Gly	Lys	Pro	Glu	Lys	Leu	Ala	Asp	Gly	Arg	Arg	Val	Arg	Val	Thr		
	2195					2200					2205					
gtg	gat	gtc	t	tgc	aaa	gga	acc	t	cgt	ggc	atc	gga	cg	ca	6669	
Val	Asp	Val	Phe	Cys	Lys	Gly	Thr	Phe	Arg	Gly	Ile	Gly	Arg	Asn		
	2210					2215					2220					
tat	cgc	att	gcc	aag	tgc	acg	g	g	cc	aaa	tgc	gca	ttg	cg	caa	6714
Tyr	Arg	Ile	Ala	Lys	Cys	Thr	Ala	Ala	Lys	Cys	Ala	Leu	Arg	Gln		
	2225					2230					2235					
ctc	aaa	aag	cag	ggc	ttg	ata	gcc	aaa	aaa	gac	taa				6750	
Leu	Lys	Lys	Gln	Gly	Leu	Ile	Ala	Lys	Lys	Asp						
	2240					2245										

<210> 4
<211> 2249
<212> PRT
<213> Drosophila melanogaster

<400> 4
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1 5 10 15
Pro Arg Asp Phe Gln Val Glu Leu Leu Ala Thr Ala Tyr Glu Arg Asn
20 25 30
Thr Ile Ile Cys Leu Gly His Arg Ser Ser Lys Glu Phe Ile Ala Leu
35 40 45
Lys Leu Leu Gln Glu Leu Ser Arg Arg Ala Arg Arg His Gly Arg Val
50 55 60
Ser Val Tyr Leu Ser Cys Glu Val Gly Thr Ser Thr Glu Pro Cys Ser
65 70 75 80
Ile Tyr Thr Met Leu Thr His Leu Thr Asp Leu Arg Val Trp Gln Glu
85 90 95

GNCA-P03-007SequenceListing.txt

Gln Pro Asp Met Gln Ile Pro Phe Asp His Cys Trp Thr Asp Tyr His
 100 105 110
 Val Ser Ile Leu Arg Pro Glu Gly Phe Leu Tyr Leu Leu Glu Thr Arg
 115 120 125
 Glu Leu Leu Leu Ser Ser Val Glu Leu Ile Val Leu Glu Asp Cys His
 130 135 140
 Asp Ser Ala Val Tyr Gln Arg Ile Arg Pro Leu Phe Glu Asn His Ile
 145 150 155 160
 Met Pro Ala Pro Pro Ala Asp Arg Pro Arg Ile Leu Gly Leu Ala Gly
 165 170 175
 Pro Leu His Ser Ala Gly Cys Glu Leu Gln Gln Leu Ser Ala Met Leu
 180 185 190
 Ala Thr Leu Glu Gln Ser Val Leu Cys Gln Ile Glu Thr Ala Ser Asp
 195 200 205
 Ile Val Thr Val Leu Arg Tyr Cys Ser Arg Pro His Glu Tyr Ile Val
 210 215 220
 Gln Cys Ala Pro Phe Glu Met Asp Glu Leu Ser Leu Val Leu Ala Asp
 225 230 235 240
 Val Leu Asn Thr His Lys Ser Phe Leu Leu Asp His Arg Tyr Asp Pro
 245 250 255
 Tyr Glu Ile Tyr Gly Thr Asp Gln Phe Met Asp Glu Leu Lys Asp Ile
 260 265 270
 Pro Asp Pro Lys Val Asp Pro Leu Asn Val Ile Asn Ser Leu Leu Val
 275 280 285
 Val Leu His Glu Met Gly Pro Trp Cys Thr Gln Arg Ala Ala His His
 290 295 300
 Phe Tyr Gln Cys Asn Glu Lys Leu Lys Val Lys Thr Pro His Glu Arg
 305 310 315 320
 His Tyr Leu Leu Tyr Cys Leu Val Ser Thr Ala Leu Ile Gln Leu Tyr
 325 330 335
 Ser Leu Cys Glu His Ala Phe His Arg His Leu Gly Ser Gly Ser Asp
 340 345 350
 Ser Arg Gln Thr Ile Glu Arg Tyr Ser Ser Pro Lys Val Arg Arg Leu
 355 360 365
 Leu Gln Thr Leu Arg Cys Phe Lys Pro Glu Glu Val His Thr Gln Ala
 370 375 380
 Asp Gly Leu Arg Arg Met Arg His Gln Val Asp Gln Ala Asp Phe Asn
 385 390 395 400
 Arg Leu Ser His Thr Leu Glu Ser Lys Cys Arg Met Val Asp Gln Met
 405 410 415
 Asp Gln Pro Pro Thr Glu Thr Arg Ala Leu Val Ala Thr Leu Glu Gln
 420 425 430

GNCA-P03-007SequenceListing.txt

Ile Leu His Thr Thr Glu Asp Arg Gln Thr Asn Arg Ser Ala Ala Arg
 435 440 445

Val Thr Pro Thr Pro Thr Pro Ala His Ala Lys Pro Lys Pro Ser Ser
 450 455 460

Gly Ala Asn Thr Ala Gln Pro Arg Thr Arg Arg Arg Val Tyr Thr Arg
 465 470 475 480

Arg His His Arg Asp His Asn Asp Gly Ser Asp Thr Leu Cys Ala Leu
 485 490 495

Ile Tyr Cys Asn Gln Asn His Thr Ala Arg Val Leu Phe Glu Leu Leu
 500 505 510

Ala Glu Ile Ser Arg Arg Asp Pro Asp Leu Lys Phe Leu Arg Cys Gln
 515 520 525

Tyr Thr Thr Asp Arg Val Ala Asp Pro Thr Thr Glu Pro Lys Glu Ala
 530 535 540

Glu Leu Glu His Arg Arg Gln Glu Glu Val Leu Lys Arg Phe Arg Met
 545 550 555 560

His Asp Cys Asn Val Leu Ile Gly Thr Ser Val Leu Glu Glu Gly Ile
 565 570 575

Asp Val Pro Lys Cys Asn Leu Val Val Arg Trp Asp Pro Pro Thr Thr
 580 585 590

Tyr Arg Ser Tyr Val Gln Cys Lys Gly Arg Ala Arg Ala Ala Pro Ala
 595 600 605

Tyr His Val Ile Leu Val Ala Pro Ser Tyr Lys Ser Pro Thr Val Gly
 610 615 620

Ser Val Gln Leu Thr Asp Arg Ser His Arg Tyr Ile Cys Ala Thr Gly
 625 630 635 640

Asp Thr Thr Glu Ala Asp Ser Asp Ser Asp Asp Ser Ala Met Pro Asn
 645 650 655

Ser Ser Gly Ser Asp Pro Tyr Thr Phe Gly Thr Ala Arg Gly Thr Val
 660 665 670

Lys Ile Leu Asn Pro Glu Val Phe Ser Lys Gln Pro Pro Thr Ala Cys
 675 680 685

Asp Ile Lys Leu Gln Glu Ile Gln Asp Glu Leu Pro Ala Ala Gln
 690 695 700

Leu Asp Thr Ser Asn Ser Ser Asp Glu Ala Val Ser Met Ser Asn Thr
 705 710 715 720

Ser Pro Ser Glu Ser Ser Thr Glu Gln Lys Ser Arg Arg Phe Gln Cys
 725 730 735

Glu Leu Ser Ser Leu Thr Glu Pro Glu Asp Thr Ser Asp Thr Thr Ala
 740 745 750

Glu Ile Asp Thr Ala His Ser Leu Ala Ser Thr Thr Lys Asp Leu Val
 755 760 765

GNCA-P03-007SequenceListing.txt

His Gln Met Ala Gln Tyr Arg Glu Ile Glu Gln Met Leu Leu Ser Lys
 770 775 780

Cys Ala Asn Thr Glu Pro Pro Glu Gln Glu Gln Ser Glu Ala Glu Arg
 785 790 795 800

Phe Ser Ala Cys Leu Ala Ala Tyr Arg Pro Lys Pro His Leu Leu Thr
 805 810 815

Gly Ala Ser Val Asp Leu Gly Ser Ala Ile Ala Leu Val Asn Lys Tyr
 820 825 830

Cys Ala Arg Leu Pro Ser Asp Thr Phe Thr Lys Leu Thr Ala Leu Trp
 835 840 845

Arg Cys Thr Arg Asn Glu Arg Ala Gly Val Thr Leu Phe Gln Tyr Thr
 850 855 860

Leu Arg Leu Pro Ile Asn Ser Pro Leu Lys His Asp Ile Val Gly Leu
 865 870 875 880

Pro Met Pro Thr Gln Thr Leu Ala Arg Arg Leu Ala Ala Leu Gln Ala
 885 890 895

Cys Val Glu Leu His Arg Ile Gly Glu Leu Asp Asp Gln Leu Gln Pro
 900 905 910

Ile Gly Lys Glu Gly Phe Arg Ala Leu Glu Pro Asp Trp Glu Cys Phe
 915 920 925

Glu Leu Glu Pro Glu Asp Glu Gln Ile Val Gln Leu Ser Asp Glu Pro
 930 935 940

Arg Pro Gly Thr Thr Lys Arg Arg Gln Tyr Tyr Lys Arg Ile Ala
 945 950 955 960

Ser Glu Phe Cys Asp Cys Arg Pro Val Ala Gly Ala Pro Cys Tyr Leu
 965 970 975

Tyr Phe Ile Gln Leu Thr Leu Gln Cys Pro Ile Pro Glu Glu Gln Asn
 980 985 990

Thr Arg Gly Arg Lys Ile Tyr Pro Pro Glu Asp Ala Gln Gln Gly Phe
 995 1000 1005

Gly Ile Leu Thr Thr Lys Arg Ile Pro Lys Leu Ser Ala Phe Ser
 1010 1015 1020

Ile Phe Thr Arg Ser Gly Glu Val Lys Val Ser Leu Glu Leu Ala
 1025 1030 1035

Lys Glu Arg Val Ile Leu Thr Ser Glu Gln Ile Val Cys Ile Asn
 1040 1045 1050

Gly Phe Leu Asn Tyr Thr Phe Thr Asn Val Leu Arg Leu Gln Lys
 1055 1060 1065

Phe Leu Met Leu Phe Asp Pro Asp Ser Thr Glu Asn Cys Val Phe
 1070 1075 1080

Ile Val Pro Thr Val Lys Ala Pro Ala Gly Gly Lys His Ile Asn
 1085 1090 1095

GNCA-P03-007SequenceListing.txt

Trp Gln Phe Leu Glu Leu Ile Gln Ala Asn Gly Asn Thr Met Pro
1100 1105 1110

Arg Ala Val Pro Asp Glu Glu Arg Gln Ala Gln Pro Phe Asp Pro
1115 1120 1125

Gln Arg Phe Gln Asp Ala Val Val Met Pro Trp Tyr Arg Asn Gln
1130 1135 1140

Asp Gln Pro Gln Tyr Phe Tyr Val Ala Glu Ile Cys Pro His Leu
1145 1150 1155

Ser Pro Leu Ser Cys Phe Pro Gly Asp Asn Tyr Arg Thr Phe Lys
1160 1165 1170

His Tyr Tyr Leu Val Lys Tyr Gly Leu Thr Ile Gln Asn Thr Ser
1175 1180 1185

Gln Pro Leu Leu Asp Val Asp His Thr Ser Ala Arg Leu Asn Phe
1190 1195 1200

Leu Thr Pro Arg Tyr Val Asn Arg Lys Gly Val Ala Leu Pro Thr
1205 1210 1215

Ser Ser Glu Glu Thr Lys Arg Ala Lys Arg Glu Asn Leu Glu Gln
1220 1225 1230

Lys Gln Ile Leu Val Pro Glu Leu Cys Thr Val His Pro Phe Pro
1235 1240 1245

Ala Ser Leu Trp Arg Thr Ala Val Cys Leu Pro Cys Ile Leu Tyr
1250 1255 1260

Arg Ile Asn Gly Leu Leu Leu Ala Asp Asp Ile Arg Lys Gln Val
1265 1270 1275

Ser Ala Asp Leu Gly Leu Gly Arg Gln Gln Ile Glu Asp Glu Asp
1280 1285 1290

Phe Glu Trp Pro Met Leu Asp Phe Gly Trp Ser Leu Ser Glu Val
1295 1300 1305

Leu Lys Lys Ser Arg Glu Ser Lys Gln Lys Glu Ser Leu Lys Asp
1310 1315 1320

Asp Thr Ile Asn Gly Lys Asp Leu Ala Asp Val Glu Lys Lys Pro
1325 1330 1335

Thr Ser Glu Glu Thr Gln Leu Asp Lys Asp Ser Lys Asp Asp Lys
1340 1345 1350

Val Glu Lys Ser Ala Ile Glu Leu Ile Ile Glu Gly Glu Glu Lys
1355 1360 1365

Leu Gln Glu Ala Asp Asp Phe Ile Glu Ile Gly Thr Trp Ser Asn
1370 1375 1380

Asp Met Ala Asp Asp Ile Ala Ser Phe Asn Gln Glu Asp Asp Asp
1385 1390 1395

Glu Asp Asp Ala Phe His Leu Pro Val Leu Pro Ala Asn Val Lys
1400 1405 1410

GNCA-P03-007SequenceListing.txt

Phe Cys Asp Gln Gln Thr Arg Tyr Gly Ser Pro Thr Phe Trp Asp
 1415 1420 1425

Val Ser Asn Gly Glu Ser Gly Phe Lys Gly Pro Lys Ser Ser Gln
 1430 1435 1440

Asn Lys Gln Gly Gly Lys Gly Lys Ala Lys Gly Pro Ala Lys Pro
 1445 1450 1455

Thr Phe Asn Tyr Tyr Asp Ser Asp Asn Ser Leu Gly Ser Ser Tyr
 1460 1465 1470

Asp Asp Asp Asp Asn Ala Gly Pro Leu Asn Tyr Met His His Asn
 1475 1480 1485

Tyr Ser Ser Asp Asp Asp Asp Val Ala Asp Asp Ile Asp Ala Gly
 1490 1495 1500

Arg Ile Ala Phe Thr Ser Lys Asn Glu Ala Glu Thr Ile Glu Thr
 1505 1510 1515

Ala Gln Glu Val Glu Lys Arg Gln Lys Gln Leu Ser Ile Ile Gln
 1520 1525 1530

Ala Thr Asn Ala Asn Glu Arg Gln Tyr Gln Gln Thr Lys Asn Leu
 1535 1540 1545

Leu Ile Gly Phe Asn Phe Lys His Glu Asp Gln Lys Glu Pro Ala
 1550 1555 1560

Thr Ile Arg Tyr Glu Glu Ser Ile Ala Lys Leu Lys Thr Glu Ile
 1565 1570 1575

Glu Ser Gly Gly Met Leu Val Pro His Asp Gln Gln Leu Val Leu
 1580 1585 1590

Lys Arg Ser Asp Ala Ala Glu Ala Gln Val Ala Lys Val Ser Met
 1595 1600 1605

Met Glu Leu Leu Lys Gln Leu Leu Pro Tyr Val Asn Glu Asp Val
 1610 1615 1620

Leu Ala Lys Lys Leu Gly Asp Arg Arg Glu Leu Leu Leu Ser Asp
 1625 1630 1635

Leu Val Glu Leu Asn Ala Asp Trp Val Ala Arg His Glu Gln Glu
 1640 1645 1650

Thr Tyr Asn Val Met Gly Cys Gly Asp Ser Phe Asp Asn Tyr Asn
 1655 1660 1665

Asp His His Arg Leu Asn Leu Asp Glu Lys Gln Leu Lys Leu Gln
 1670 1675 1680

Tyr Glu Arg Ile Glu Ile Glu Pro Pro Thr Ser Thr Lys Ala Ile
 1685 1690 1695

Thr Ser Ala Ile Leu Pro Ala Gly Phe Ser Phe Asp Arg Gln Pro
 1700 1705 1710

Asp Leu Val Gly His Pro Gly Pro Ser Pro Ser Ile Ile Leu Gln
 1715 1720 1725

GNCA-P03-007SequenceListing.txt

Ala Leu Thr Met Ser Asn Ala Asn Asp Gly Ile Asn Leu Glu Arg
 1730 1735 1740
 Leu Glu Thr Ile Gly Asp Ser Phe Leu Lys Tyr Ala Ile Thr Thr
 1745 1750 1755
 Tyr Leu Tyr Ile Thr Tyr Glu Asn Val His Glu Gly Lys Leu Ser
 1760 1765 1770
 His Leu Arg Ser Lys Gln Val Ala Asn Leu Asn Leu Tyr Arg Leu
 1775 1780 1785
 Gly Arg Arg Lys Arg Leu Gly Glu Tyr Met Ile Ala Thr Lys Phe
 1790 1795 1800
 Glu Pro His Asp Asn Trp Leu Pro Pro Cys Tyr Tyr Val Pro Lys
 1805 1810 1815
 Glu Leu Glu Lys Ala Leu Ile Glu Ala Lys Ile Pro Thr His His
 1820 1825 1830
 Trp Lys Leu Ala Asp Leu Leu Asp Ile Lys Asn Leu Ser Ser Val
 1835 1840 1845
 Gln Ile Cys Glu Met Val Arg Glu Lys Ala Asp Ala Leu Gly Leu
 1850 1855 1860
 Glu Gln Asn Gly Gly Ala Gln Asn Gly Gln Leu Asp Asp Ser Asn
 1865 1870 1875
 Asp Ser Cys Asn Asp Phe Ser Cys Phe Ile Pro Tyr Asn Leu Val
 1880 1885 1890
 Ser Gln His Ser Ile Pro Asp Lys Ser Ile Ala Asp Cys Val Glu
 1895 1900 1905
 Ala Leu Ile Gly Ala Tyr Leu Ile Glu Cys Gly Pro Arg Gly Ala
 1910 1915 1920
 Leu Leu Phe Met Ala Trp Leu Gly Val Arg Val Leu Pro Ile Thr
 1925 1930 1935
 Arg Gln Leu Asp Gly Gly Asn Gln Glu Gln Arg Ile Pro Gly Ser
 1940 1945 1950
 Thr Lys Pro Asn Ala Glu Asn Val Val Thr Val Tyr Gly Ala Trp
 1955 1960 1965
 Pro Thr Pro Arg Ser Pro Leu Leu His Phe Ala Pro Asn Ala Thr
 1970 1975 1980
 Glu Glu Leu Asp Gln Leu Leu Ser Gly Phe Glu Glu Phe Glu Glu
 1985 1990 1995
 Ser Leu Gly Tyr Lys Phe Arg Asp Arg Ser Tyr Leu Leu Gln Ala
 2000 2005 2010
 Met Thr His Ala Ser Tyr Thr Pro Asn Arg Leu Thr Asp Cys Tyr
 2015 2020 2025
 Gln Arg Leu Glu Phe Leu Gly Asp Ala Val Leu Asp Tyr Leu Ile
 2030 2035 2040

GNCA-P03-007SequenceListing.txt

Thr Arg His Leu Tyr Glu Asp Pro Arg Gln His Ser Pro Gly Ala
 2045 2050 2055
 Leu Thr Asp Leu Arg Ser Ala Leu Val Asn Asn Thr Ile Phe Ala
 2060 2065 2070
 Ser Leu Ala Val Arg His Gly Phe His Lys Phe Phe Arg His Leu
 2075 2080 2085
 Ser Pro Gly Leu Asn Asp Val Ile Asp Arg Phe Val Arg Ile Gln
 2090 2095 2100
 Gln Glu Asn Gly His Cys Ile Ser Glu Glu Tyr Tyr Leu Leu Ser
 2105 2110 2115
 Glu Glu Glu Cys Asp Asp Ala Glu Asp Val Glu Val Pro Lys Ala
 2120 2125 2130
 Leu Gly Asp Val Phe Glu Ser Ile Ala Gly Ala Ile Phe Leu Asp
 2135 2140 2145
 Ser Asn Met Ser Leu Asp Val Val Trp His Val Tyr Ser Asn Met
 2150 2155 2160
 Met Ser Pro Glu Ile Glu Gln Phe Ser Asn Ser Val Pro Lys Ser
 2165 2170 2175
 Pro Ile Arg Glu Leu Leu Glu Leu Glu Pro Glu Thr Ala Lys Phe
 2180 2185 2190
 Gly Lys Pro Glu Lys Leu Ala Asp Gly Arg Arg Val Arg Val Thr
 2195 2200 2205
 Val Asp Val Phe Cys Lys Gly Thr Phe Arg Gly Ile Gly Arg Asn
 2210 2215 2220
 Tyr Arg Ile Ala Lys Cys Thr Ala Ala Lys Cys Ala Leu Arg Gln
 2225 2230 2235
 Leu Lys Lys Gln Gly Leu Ile Ala Lys Lys Asp
 2240 2245

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 <211> 1145
 <212> PRT
 <213> Drosophila melanogaster

<400> 5
 Met Gly Lys Lys Asp Lys Asn Lys Lys Gly Gly Gln Asp Ser Ala Ala
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 Ala Pro Gln Pro Gln Gln Gln Lys Gln Gln Gln Gln Arg Gln Gln
 20 25 30
 Gln Pro Gln Gln Leu Gln Gln Pro Gln Gln Leu Gln Gln Pro Gln Gln
 35 40 45
 Leu Gln Gln Pro Gln Gln Gln Gln Gln Gln Pro His Gln Gln Gln
 50 55 60
 Gln Gln Ser Ser Arg Gln Gln Pro Ser Thr Ser Ser Gly Gly Ser Arg
 65 70 75 80

GNCA-P03-007SequenceListing.txt

Ala Ser Gly Phe Gln Gln Gly Gly Gln Gln Lys Ser Gln Asp Ala
85 90 95

Glu Gly Trp Thr Ala Gln Lys Lys Gln Gly Lys Gln Gln Val Gln Gly
100 105 110

Trp Thr Lys Gln Gly Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gly
115 120 125

Gln Asp Gly Gly Tyr Gln Gln Arg Pro Pro Gly Gln Gln Gln Gly Gly
130 135 140

His Gln Gln Gly Arg Gln Gly Glu Gly Gly Tyr Gln Gln Arg Pro
145 150 155 160

Pro Gly Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gly Gln Glu
165 170 175

Gly Gly Tyr Gln Gln Arg Pro Ser Gly Gln Gln Gln Gly Gly His Gln
180 185 190

Gln Gln Arg Gln Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro Pro Gly
195 200 205

Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gln Gly Gln Glu Gly Gly
210 215 220

Tyr Gln Gln Arg Pro Ser Gly Gln Gln Gly Gly His Gln Gln Gly
225 230 235 240

Arg Gln Gln Gln Glu Gly Gly Tyr Gln Gln Arg Pro Ser Gly Gln Gln
245 250 255

Gln Gln Gly His Gln Gln Gly Arg Gln Gln Glu Gly Gly Tyr Gln
260 265 270

Gln Arg Pro Ser Gly Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln
275 280 285

Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro Pro Gly Gln Gln Pro Asn
290 295 300

Gln Thr Gln Ser Gln Gly Gln Tyr Gln Ser Arg Gly Pro Pro Gln Gln
305 310 315 320

Gln Gln Ala Ala Pro Leu Pro Leu Pro Pro Gln Pro Ala Gly Ser Ile
325 330 335

Lys Arg Gly Thr Ile Gly Lys Pro Gly Gln Val Gly Ile Asn Tyr Leu
340 345 350

Asp Leu Asp Leu Ser Lys Met Pro Ser Val Ala Tyr His Tyr Asp Val
355 360 365

Lys Ile Met Pro Glu Arg Pro Lys Lys Phe Tyr Arg Gln Ala Phe Glu
370 375 380

Gln Phe Arg Val Asp Gln Leu Gly Gly Ala Val Leu Ala Tyr Asp Gly
385 390 395 400

Lys Ala Ser Cys Tyr Ser Val Asp Lys Leu Pro Leu Asn Ser Gln Asn
405 410 415

GNCA-P03-007SequenceListing.txt

Pro Glu Val Thr Val Thr Asp Arg Asn Gly Arg Thr Leu Arg Tyr Thr
 420 425 430
 Ile Glu Ile Lys Glu Thr Gly Asp Ser Thr Ile Asp Leu Lys Ser Leu
 435 440 445
 Thr Thr Tyr Met Asn Asp Arg Ile Phe Asp Lys Pro Met Arg Ala Met
 450 455 460
 Gln Cys Val Glu Val Val Leu Ala Ser Pro Cys His Asn Lys Ala Ile
 465 470 475 480
 Arg Val Gly Arg Ser Phe Phe Lys Met Ser Asp Pro Asn Asn Arg His
 485 490 495
 Glu Leu Asp Asp Gly Tyr Glu Ala Leu Val Gly Leu Tyr Gln Ala Phe
 500 505 510
 Met Leu Gly Asp Arg Pro Phe Leu Asn Val Asp Ile Ser His Lys Ser
 515 520 525
 Phe Pro Ile Ser Met Pro Met Ile Glu Tyr Leu Glu Arg Phe Ser Leu
 530 535 540
 Lys Ala Lys Ile Asn Asn Thr Thr Asn Leu Asp Tyr Ser Arg Arg Phe
 545 550 555 560
 Leu Glu Pro Phe Leu Arg Gly Ile Asn Val Val Tyr Thr Pro Pro Gln
 565 570 575
 Ser Phe Gln Ser Ala Pro Arg Val Tyr Arg Val Asn Gly Leu Ser Arg
 580 585 590
 Ala Pro Ala Ser Ser Glu Thr Phe Glu His Asp Gly Lys Lys Val Thr
 595 600 605
 Ile Ala Ser Tyr Phe His Ser Arg Asn Tyr Pro Leu Lys Phe Pro Gln
 610 615 620
 Leu His Cys Leu Asn Val Gly Ser Ser Ile Lys Ser Ile Leu Leu Pro
 625 630 635 640
 Ile Glu Leu Cys Ser Ile Glu Glu Gly Gln Ala Leu Asn Arg Lys Asp
 645 650 655
 Gly Ala Thr Gln Val Ala Asn Met Ile Lys Tyr Ala Ala Thr Ser Thr
 660 665 670
 Asn Val Arg Lys Arg Lys Ile Met Asn Leu Leu Gln Tyr Phe Gln His
 675 680 685
 Asn Leu Asp Pro Thr Ile Ser Arg Phe Gly Ile Arg Ile Ala Asn Asp
 690 695 700
 Phe Ile Val Val Ser Thr Arg Val Leu Ser Pro Pro Gln Val Glu Tyr
 705 710 715 720
 His Ser Lys Arg Phe Thr Met Val Lys Asn Gly Ser Trp Arg Met Asp
 725 730 735
 Gly Met Lys Phe Leu Glu Pro Lys Pro Lys Ala His Lys Cys Ala Val
 740 745 750

GNCA-P03-007SequenceListing.txt

Leu Tyr Cys Asp Pro Arg Ser Gly Arg Lys Met Asn Tyr Thr Gln Leu
 755 760 765

Asn Asp Phe Gly Asn Leu Ile Ile Ser Gln Gly Lys Ala Val Asn Ile
 770 775 780

Ser Leu Asp Ser Asp Val Thr Tyr Arg Pro Phe Thr Asp Asp Glu Arg
 785 790 795 800

Ser Leu Asp Thr Ile Phe Ala Asp Leu Lys Arg Ser Gln His Asp Leu
 805 810 815

Ala Ile Val Ile Ile Pro Gln Phe Arg Ile Ser Tyr Asp Thr Ile Lys
 820 825 830

Gln Lys Ala Glu Leu Gln His Gly Ile Leu Thr Gln Cys Ile Lys Gln
 835 840 845

Phe Thr Val Glu Arg Lys Cys Asn Asn Gln Thr Ile Gly Asn Ile Leu
 850 855 860

Leu Lys Ile Asn Ser Lys Leu Asn Gly Ile Asn His Lys Ile Lys Asp
 865 870 875 880

Asp Pro Arg Leu Pro Met Met Lys Asn Thr Met Tyr Ile Gly Ala Asp
 885 890 895

Val Thr His Pro Ser Pro Asp Gln Arg Glu Ile Pro Ser Val Val Gly
 900 905 910

Val Ala Ala Ser His Asp Pro Tyr Gly Ala Ser Tyr Asn Met Gln Tyr
 915 920 925

Arg Leu Gln Arg Gly Ala Leu Glu Glu Ile Glu Asp Met Phe Ser Ile
 930 935 940

Thr Leu Glu His Leu Arg Val Tyr Lys Glu Tyr Arg Asn Ala Tyr Pro
 945 950 955 960

Asp His Ile Ile Tyr Tyr Arg Asp Gly Val Ser Asp Gly Gln Phe Pro
 965 970 975

Lys Ile Lys Asn Glu Glu Leu Arg Cys Ile Lys Gln Ala Cys Asp Lys
 980 985 990

Val Gly Cys Lys Pro Lys Ile Cys Cys Val Ile Val Val Lys Arg His
 995 1000 1005

His Thr Arg Phe Phe Pro Ser Gly Asp Val Thr Thr Ser Asn Lys
 1010 1015 1020

Phe Asn Asn Val Asp Pro Gly Thr Val Val Asp Arg Thr Ile Val
 1025 1030 1035

His Pro Asn Glu Met Gln Phe Phe Met Val Ser Gly Gln Ala Ile
 1040 1045 1050

Gln Gly Thr Ala Lys Pro Thr Arg Tyr Asn Val Ile Glu Asn Thr
 1055 1060 1065

Gly Asn Leu Asp Ile Asp Leu Leu Gln Gln Leu Thr Tyr Asn Leu
 1070 1075 1080

GNCA-P03-007SequenceListing.txt

Cys	His	Met	Phe	Pro	Arg	Cys	Asn	Arg	Ser	Val	Ser	Tyr	Pro	Ala
1085						1090						1095		
Pro	Ala	Tyr	Leu	Ala	His	Leu	Val	Ala	Ala	Arg	Gly	Arg	Val	Tyr
1100						1105					1110			
Leu	Thr	Gly	Thr	Asn	Arg	Phe	Leu	Asp	Leu	Lys	Lys	Glu	Tyr	Ala
1115						1120					1125			
Lys	Arg	Thr	Ile	Val	Pro	Glu	Phe	Met	Lys	Lys	Asn	Pro	Met	Tyr
1130						1135					1140			
Phe	Val													
1145														

<210> 6
<211> 22
<212> RNA
<213> Photinus pyralis

<400> 6
ucgaaguacu cagcuaagu ga

22

<210> 7
<211> 22
<212> RNA
<213> Photinus pyralis

<400> 7
uaaagcuuca ugagucgcau uc

22

<210> 8
<211> 83
<212> RNA
<213> Photinus pyralis

<400> 8
caucgacuga aaucccuccc ugguaauccg uuugggcucu gcccugcuau gggauaaaug
guuaucaggg auuuuagucg auc

60

83

<210> 9
<211> 62
<212> RNA
<213> Photinus pyralis

<400> 9
caucgacuga aaucccuggu aauccguugu uaacaacgga uuaccaggga uuucagucga
ug

60

62

<210> 10
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> primer
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44

GNCA-P03-007SequenceListing.txt

<210> 11
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

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<211> 44
<212> DNA
<213> Artificial Sequence

<220>
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<210> 13
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<212> DNA
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<220>
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<400> 13 taatacgact cactataggg aaatcattgc tttcctgata atgc 44

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<210> 16
<211> 45
<212> DNA
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<220>
<223> primer

GNCA-P03-007SequenceListing.txt

<400> 16
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<210> 17
<211> 44
<212> DNA
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<220>
<223> primer

<400> 17
taatacgact cactataggg tcacatgtt tggctaagac ctat 44